

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number
WO 2005/055377 A1

(51) International Patent Classification⁷: **H01S 3/067**

(21) International Application Number:
PCT/GB2004/004992

(22) International Filing Date:
26 November 2004 (26.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0327661.5 28 November 2003 (28.11.2003) GB

(71) Applicant (for all designated States except US): **QINETIQ LIMITED** [GB/GB]; Registered Office, 85 Buckingham Gate, London SW1E 6PD (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **JENKINS, Richard, M.** [GB/GB]; QinetiQ Limited, Malvern Technology Centre, Room PA109, St Andrew's Road, Malvern, Worcestershire WR14 3PS (GB). **MCNIE, Mark, E.** [GB/GB]; QinetiQ Limited, Malvern Technology Centre,

Room E9A4, St Andrew's Road, Malvern, Worcestershire WR14 3PS (GB). **PRICE, Nicola** [GB/GB]; QinetiQ Limited, Malvern Technology Centre, Room E9A9, St Andrew's Road, Malvern, Worcestershire WR14 3PS (GB). **STACEY, Craig, D.** [GB/GB]; QinetiQ Limited, Malvern Technology Centre, Room PA110, St Andrew's Road, Malvern, Worcestershire WR14 3PS (GB).

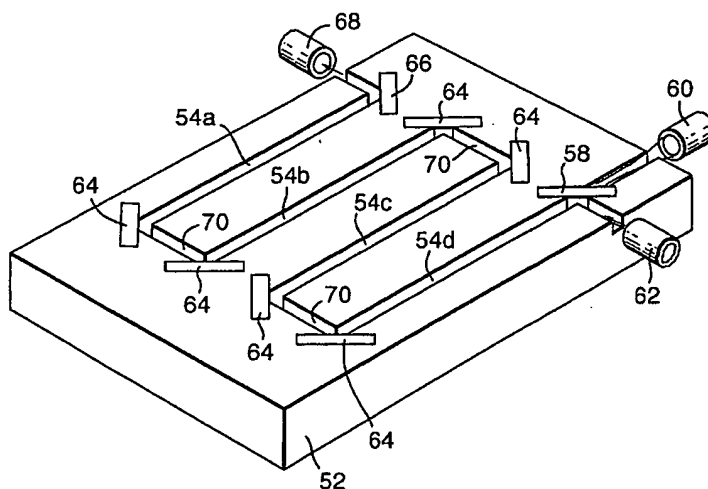
(74) Agent: **DUNN, P., E.**; QinetiQ Ltd, IP Formalities, Cody Technology Park, A4 Building, Room G016, Ively Road, Farnborough, Hampshire GU14 0LX (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: OPTICAL FIBRE AMPLIFIER



(57) Abstract: An optical amplifier (50; 66) is described that comprises at least two sections of amplifying optical fibre (24; 56; 84; 94) and pumping means for optically pumping the amplifying optical fibre (24; 56; 84; 94). Optical fibre support means, for example a channel or channels in a substrate (20; 26; 42; 44; 54), are also provided to hold the two or more sections of amplifying optical fibre (24; 56; 84; 94) substantially straight during use. The optical fibre support means also includes a means for coupling light between the at least two sections of amplifying optical fibre. The at least one amplifying optical fibre (24; 56; 84; 94) may comprise an Erbium doped core to provide an erbium doped fibre amplifier (EDFA).

WO 2005/055377 A1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.